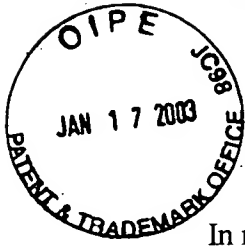


AF / 3724

Docket No. 4564-001

PATENT

#27 SM / Sub. Brief



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William M. OWENS

Serial No. 09/053,832

Filed: April 1, 1998

For: FEEDWORKS DEVICE

Group Art Unit: 3724

Examiner: C. Goodman

Box Patent Appeal Brief
Commissioner for Patents
U.S. Patents and Trademarks Office
Washington D.C. 20231

Attn: BOARD OF PATENT APPEALS AND INTERFERENCES

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LETTER

This letter and the Substitute Brief concurrently filed herewith are submitted in response to the Notification of Non-Compliance with 37 CFR 1.192(c) (paper No. 26).

In the Notification, Examiner Goodman noted that Appellant's description fails to reference the relevant specification page and line number for the described features. Accordingly, in the attached Substitute Brief, the "Summary of Invention" sub-section has been revised to provide references to the specification, where appropriate, as requested by Examiner Goodman. The remaining sub-sections of the Substitute Brief are identical to the corresponding sub-sections of the October 8, 2002, Appeal Brief.

Appellant respectfully submits that this Substitute Brief is now in compliance with Rule 192(c). An Examiner's Answer on the merits or withdrawal of the finality of the last Office Action is deemed to be appropriate, and is therefore respectfully requested.

A good faith effort has been made to comply with the Examiner's request. If for any reason this Substitute Brief is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please immediately telephone the undersigned, Applicant's attorney of record.

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Docket No.: 4564-001

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

William M. OWENS

Serial No. 09/053,832

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Assistant Commissioner for Patents
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SUBSTITUTE BRIEF

This paper is a substitute brief for the Appeal Brief filed in this case on October 8, 2002.

The fees required under § 1.17(f) and any required petition for extension of time for filing this brief and fees therefore, are dealt with in the accompanying TRANSMITTAL OF SUBSTITUTE BRIEF.

This substitute brief is transmitted in triplicate.

This brief contains these items under the following headings, and in the order set forth below (37 C.F.R. § 1.192(c)):

I. Real Party in Interest.

II. Related Appeals and Interferences.

III. Status of Claims.

IV. Status of Amendments.

V. Summary of Invention.

VI. Issues.

A. First Issue

B. Second Issue

C. Third Issue

D. Fourth Issue

VII. Grouping of Claims.

VIII. Arguments.

A. First Issue 1. 35 U.S.C. 112, second paragraph rejection of claims 28-30

2. Conclusion

B. Second Issue 1. *35 U.S.C. 103(a)* rejection of claims 15, 18, 22, 25-32 as being unpatentable over *Chambers* in view of *Baranski*.

2. Conclusion

C. Third Issue 1. 35 U.S.C. 103(a) rejection of claims 16-17, 23-24 as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Zimmerman*.

2. Conclusion

D. Fourth Issue 1. *35 U.S.C. 103(a)* rejection of claims 19-21 as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Conrad*.

2. Conclusion

IX. Appendix of Claims Involved in the Appeal.

The final page of this brief bears the attorney's signature.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is William Owens.

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals or interferences that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

A. Total Number of Claims in Application

There is a total of 23 claims in the application, which are identified as claims 9-13 and 15-32.

B. Status of all the claims

1. Claims cancelled: none
2. Claims withdrawn from consideration but not cancelled: 9-13
3. Claims pending: claims 9-13 and 15-32
4. Claims allowed: none
5. Claims rejected: claims 15-32

C. Claims on Appeal

Claims on appeal are claims 15-32 as rejected by the Final Office Action dated April 9, 2002.

IV. STATUS OF AMENDMENTS

No Response has been field in reply to the April 9, 2002 Final Office Action.

V. SUMMARY OF INVENTION

The invention relates to a mechanism to move material, e.g., wooden boards, through a processing unit, e.g., a cutter, so that the material remains in constant orientation to the processing unit as it passes through the processing unit. See page 1, lines 5-9 of the original specification. An objective of the present invention is to maintain the alignment of the material with the processing unit without marring the surface of the material to be processed. See page 2, lines 4-7 of the original specification. This objective of the present invention can be achieved without using spikes or side clamping. See page 2, lines 1-3 of the original specification and page 2, lines 9-10 of the Affidavit/Declaration signed June 26, 2000.

The above objective is obtained by an apparatus of the present invention (best seen in Fig. 2) which comprises input and output conveyors (10, 41) installed in series and spaced apart from each other for carrying material to be processed in a working direction, and a processing unit (23, 24) disposed between the input and output conveyors for processing the material. See page 3, lines 19-20 and page 4, lines 21-23 of the original specification. Each of the input and output conveyors includes an endless belt (10, 41) trained around a pair of input-side (8, 43) and output-side (42, 34) pulleys. See page 3, line 28 through page 4, line 4 of the original specification. Each endless belt (10, 41) has a non-skid upper surface (28, Fig. 5) adapted to carry the material and a lower opposing surface (29, Fig. 6) provided thereon with a guiding strip (30, Fig. 6) extending longitudinally of the endless belt. See page 3, lines 20-27. The input-side (8, 43) and output-side (42, 34) pulleys have horizontal axes of rotation. The endless belts (10, 41) are trained around the respective pulleys (8, 43, 42, 34) with the non-skid upper surfaces (28) facing outwardly and the guiding strips (30) extending in a plane substantially parallel with the working direction. Each of the pulleys (8, 43, 42, 34) has a groove (31, Fig. 4) extending continuously circumferentially around the pulley and in the

plane for engaging the respective strip (30) as can be seen in the Figures. See also page 4, lines 7-13 and page 5, lines 6-9 of the original specification.

The strips (30) and grooves (31) cooperate to prevent transverse displacements of the endless belt with respect to the working direction. See page 4, lines 7-13 of the original specification.

The strips (30) and grooves (31) together with the non-skid upper surfaces (28) prevent transverse displacements of the material to be processed with respect to the working direction. See page 2, lines 10-18 and page 4, lines 7-13 of the original specification.

In accordance with an aspect of the present invention, the apparatus additionally has hold-down members (11, 19, in Fig. 2) having non-marring surfaces for pressing the material against the non-skid surface (28) so that the material maintains a constant orientation to the processing unit (23, 24). See page 5, lines 6-10 of the original specification.

In accordance with another aspect of the present invention, a method of using the apparatus of the present invention to feed the material to be processed to the processing unit is provided. The method comprises the steps of carrying the material on the non-skid upper surface of the input conveyor toward the processing unit, processing the material with the processing unit, and carrying the processed material on the non-skid upper surface of the output conveyor away from the processing unit. The unique arrangement of the apparatus of the present invention permits the material to be fed in and out without positive lateral edge contact with the apparatus. See Fig. 3 and page 5, lines 3-18 of the original specification.

VI. ISSUES

A. First Issue

The first issue is whether the Examiner was correct in rejecting claims 28-30 under 35 U.S.C. 112, second paragraph as being indefinite.

B. Second Issue

The second issue is whether the Examiner was correct in rejecting claims 15, 18, 22, 25-32 under 35 U.S.C. 103(a) as being unpatentable over *Chambers* (U.S. Patent No. 5,637,068) in view of *Baranski* (U.S. Patent No. 4,681,005).

C. Third Issue

The third issue is whether the Examiner was correct in rejecting claims 16-17, 23-24 as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Zimmerman* (U.S. Patent No. 4,009,741).

D. Fourth Issue

The fourth issue is whether the Examiner was correct in rejecting claims 19-21 as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Conrad* (U.S. Patent No. 4,449,958).

VII. GROUPING OF CLAIMS

For purposes of this Appeal Brief only, the claims have been grouped as follows:

- Group I. Claims 15, 18, 22, 25-32
- Group II. Claims 16-17, 23-24
- Group III. Claims 19-21

The Appellant respectfully asserts that claims in each group are separately patentable, and thus, the claims do not stand or fall together.

VIII. ARGUMENTS

A. First Issue

35 U.S.C. 112, second paragraph rejection of claims 28-30

The Examiner rejects claims 28-30 under *35 U.S.C. 112, second paragraph* as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. The Examiner in paragraph 5 of the Final Office Action states that claim 28 is vague and indefinite in that it is not clear what feature the phrase “which travels in the working direction” is referring to. Appellant respectfully traverses this erroneous rejection.

First, the Examiner’s *35 U.S.C. 112, second paragraph* rejection of claim 28 and the *35 U.S.C. 103(a)* rejection of the same claim, indicated in paragraph 7 of the Final Office Action, appear to be contradictory. It is not understood how the Examiner finds the subject matter of claim 28 obvious over the applied art of record while holding that the scope of the claim is vague and indefinite.

Second, the plain meaning of claim 28 is clear to a person of ordinary skill in the art, contrary to the Examiner’s reading of the claim. A person of ordinary skill in the art would readily recognize that claim 28 further limits the apparatus of claim 15 to include a work bed disposed immediately beneath a portion of the endless belt for bearing at least a partial weight of the material. The moving element of the apparatus is the endless belt which travels in the working direction.

Conclusion

For the reasons shown above, Appellant respectfully requests that the *35 U.S.C. 112, second paragraph* rejection of claims 28-30 be reversed.

B. Second Issue

35 U.S.C. 103(a) rejection of claims 15, 18, 22, 25-32 as being unpatentable over Chambers in view of Baranski.

The Examiner rejects claims 15, 18, 22, 25-32 under 35 U.S.C. 103(a) as being unpatentable over *Chambers* in view of *Baranski*.

In particular, the Examiner admits that *Chambers* lacks (i) some of the claimed pulleys and (ii) the claimed guiding strip and groove. The Examiner however states that the above features can be imported from *Baranski* for the reason advanced in page 4, lines 11-14 from bottom of the Final Office Action. Appellant respectfully disagrees and traverses this erroneous rejection because the references are not properly combinable in the manner proposed by the Examiner.

First, the Examiner's suggestion or motivation to modify *Chambers* with *Baranski* as stated in page 4, lines 11-14 from bottom of the Final Office Action is inadequate. It is unclear from the language of the Final Office Action as to where the so-called suggestion or motivation might be found, i.e., in the reference themselves or in the knowledge generally available in the art. Appellant notes the Examiner's clarification in page 7, lines 1-5 from bottom of the Final Office Action. However, the Examiner's clarification is a merely a conclusory and evidentially unsupported statement. Appellant must now conclude that the Examiner's suggestion or motivation to combine is not available in the art prior to the present invention, unless convincing evidence is provided by the Examiner to show otherwise.

Second, there is no suggestion or motivation to combine the references in the manner proposed by the Examiner.

Chambers is completely silent on the necessity of maintaining a constant orientation of the material to be fed and processed. The reference also fails to teach or suggest the claimed guiding strip and groove as admitted by the Examiner.

Baranski fails to supply the desirability of the claimed structure as defined in, e.g., independent claim 15. *Baranski* relates to a bottom roller feed machine in which wood is fed into and through a cutting zone 82, 84 by a plurality of rollers 44. See Fig. 3 of *Baranski*. To

properly position wood on the rollers 44, a fence 42 is provided. The fence 42 of *Baranski* is a rotary fence having components substantially as described in page 4, the first paragraph of the Final Office Action. To further ensure proper tracking of the wood, pressure rollers 86 are provided opposing the fence 42. Then, wood will be placed between and grasped by the fence 42 and pressure rollers 86. The fence 42 has a continuous belt 80 which rotates to force wood in and through the cutting zone 82, 84. The *Baranski* rotary fence 42 is disposed vertically as shown in Fig. 3 of the reference, and hence, does not have a horizontal axis of rotation, as recited in independent claim 15.

Appellant further notes that ridge 156 in belt 80 (Fig. 5 of *Baranski*) is not explicitly described by *Baranski* as being able to facilitate positive guidance and accurate positioning of the belts 80 by preventing lateral movement of the belts during the longitudinal movement thereof, as alleged by the Examiner. *Baranski* is silent as to functions of the ridge 156. Thus, a reasonable reading of the *Baranski* reference should be that, since belt 80 is disposed vertically, ridge 156 is provided as a support for belt 80 against gravity rather than as a tracking guide. When belt 80 is disposed horizontally in the manner suggested by the Examiner, ridge 156 may become redundant.

Thus, it would not have been obvious to modify the input and output continuous belts as taught by *Chambers* with the ridge 156 taught by *Baranski* since it is not clear what the *Chambers* input and output continuous belts would have benefited from such a modification. There is no teaching in the applied references that the *Chambers* continuous belts may need ridge 156 as a support against gravity.

Appellant must now conclude that there is no suggestion or motivation to properly combine the references as suggested by the Examiner.

Third, even assuming that the references, i.e., *Chambers* and *Baranski*, were combinable, they would not be combinable in the manner proposed by the Examiner. This is because *Baranski* discloses a different way, and hence a different structure, to maintain precise orientation of the wood in the wood working machine, that is, to use external devices (i.e., fences and rollers) to avoid lateral movement of the wood. As a result, a person of ordinary skill in the art facing the problem of the present invention, upon learning of the *Baranski* teachings, would have been led away of the claimed structure.

Indeed, a person of ordinary skill in the art would have been motivated, at best, to provide the apparatus of *Chambers* with the rotary fence 42 or the combination of the fence 34 and rollers 86 taught by *Baranski* to provide a machine which is automatically adjustable and capable of processing wood of various sizes within a predetermined size range without interrupting the sawing process for changes in the size of the wood, and which has a rotatable fence for urging the wood through the machine. *See* col. 2 lines 26-35 of *Baranski*. The person of ordinary skill in the art would have left the *Chambers* conveyor belts unmodified, because introduction of the rotary fence 42 is taught by *Baranski* to be sufficient to solve the problem. Apparently, the above described hypothetical device does not have all limitations of the claimed invention, i.e. input and output conveyors each including an endless belt, with a guiding strip, trained around pulleys having horizontal axes of rotation, as recited in independent claim 15.

Appellant must now conclude that the applied references fail to disclose, teach or suggest all limitations of independent claim 15.

For any of the above reasons, Appellant respectfully submits that *Baranski* and *Chambers* are not combinable in any manner that could render the invention of independent claim 15 obvious. Accordingly, independent claim 15 is patentable over the applied art of record.

Appellant notes the Examiner's remarks in page 8 of the Final Office Action. In particular, the Examiner states that the vertical orientation of the *Baranski* fence is not germane to the rejections. It should be again note that the overall teaching of *Baranski* is to use a vertically oriented fence to positively guide the wood in and out. In such an arrangement, the *Baranski* strip is apparently, absent the Examiner's showing otherwise, used as a support against gravity. Thus, *Baranski* does not provide any hint as to why it would have been obvious to include the *Baranski* supporting strip in the conveyor belt of *Chambers*, i.e., what *Chambers* would have benefited from such a modification.

The Examiner further alleges that it is old and well known in the art to orient the conveyor in any manner suitable for conveyance of the work pieces. Appellant respectfully disagrees and requests that convincing evidence be provided by the Examiner in support of his allegation.

The Examiner also kindly reminds Appellant that it is improper to individually attack the references. Appellant respectfully submits that Appellant is not attacking the references individually. In fact, Appellant is attacking the Examiner's seriously flawed rationale behind his combination of the references' teachings.

It should now be clear that the Examiner fails to establish a prima facie case of obviousness. See MPEP, section 2143. The 35 U.S.C. 103(a) rejection of independent claim 15 is erroneous and should be reversed. Dependent claims 16-31 and independent claim 32 are patentable at least for the reason advanced with respect to claim 15. Claims 16-32 are also patentable on their own merit since these claims recite other features of the invention neither disclosed, taught nor suggested by the applied art.

As to claim 18, the applied art of record fails to disclose, teach or suggest the claimed **tapering profile** of the guiding strip. Strip 156 of *Baranski* corresponds in size and shape to channel 120 which is U-shaped. See column 4, lines 30-35 and 61-62 of *Baranski*. Strip 156 of *Baranski* is thus also U-shaped and does not have the claimed tapering profile. Claim 18 is thus separately patentable and does not stand or fall together with other claims in the group.

As to claim 28, the applied art of record fails to disclose, teach or suggest the claimed **work bed**. See Fig. 1 of *Chambers*. A skilled artisan would not have been motivated to include elements 114 and 116 of *Baranski* in the *Chambers* conveyor, because it is not clear from the references themselves what *Chambers* would have benefited from such a modification. Claim 28 is thus separately patentable and does not stand or fall together with other claims in the group.

As to claim 29, the applied art of record fails to disclose, teach or suggest the claimed work bed being disposed **horizontally**. See Fig. 1 of *Chambers*. A skilled artisan would not have been motivated to rearrange elements 114 and 116 of *Baranski* in the *Chambers* conveyor to orient horizontally, because it is not clear from the references themselves what *Chambers* would have benefited from such a modification. Claim 29 is thus separately patentable and does not stand or fall together with other claims in the group.

As to claim 30, the applied art of record fails to disclose, teach or suggest the claimed work bed having a longitudinal **groove**. See Fig. 1 of *Chambers*. A skilled artisan would not have been motivated to include elements 114, 116 and 120 of *Baranski* in the *Chambers* conveyor, because it is not clear from the references themselves what *Chambers* would have

benefited from such a modification. Claim 30 is thus separately patentable and does not stand or fall together with other claims in the group.

As to claim 32, the applied art of record fails to disclose, teach or suggest the claimed limitation that the material to be processed be conveyed on the non-skid upper surface of the endless belt **without positive lateral edge contact** with a fence or other part provided in the processing apparatus. This limitation is clearly supported by at least Fig. 3 of the present application. The applied art expressly requires that the wood be placed against a fence (42 of *Baranski*). In the invention, the non-skid surface of the invention in combination with the groove/strip advantageously avoid the need for a lateral fence and the prior art need for maintaining a positive lateral pressure for pressing the wood against a fence. Claim 30 is thus separately patentable and does not stand or fall together with other claims in the group.

Conclusion

For the extensive reasons shown above, Appellant respectfully requests that the 35 U.S.C. 103(a) rejection of claims 15, 18, 22, 25-32 as being unpatentable over *Chambers* in view of *Baranski* be reversed.

C. Third Issue

35 U.S.C. 103(a) rejection of claims 16-17, 23-24 as being unpatentable over Chambers in view of Baranski and further in view of Zimmerman

The Examiner rejects claims 16-17, 23-24 under 35 U.S.C. 103(a) as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Zimmerman*.

Appellant respectfully traverses this rejection for at least the reasons advanced with respect to independent claim 15 from which claims 16-17, 23-24 depend. The rejection is also traversed for the following reason(s).

As to claim 17, the applied art of record fails to disclose, teach or suggest the claimed **passively-driven** pulleys. As can be seen in Fig. 3 of *Zimmerman*, as applied by the Examiner, none of the pulleys 40a-f are passively driven. See also belts 48, 50, 52, 54, 56 of *Zimmerman*. Claim 17 is thus separately patentable and does not stand or fall together with other claims in the group.

Conclusion

For the reasons shown above, Appellant respectfully requests that the 35 U.S.C. 103(a) rejection of claims 16-17, 23-24 as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Zimmerman* be reversed.

D. Fourth Issue

35 U.S.C. 103(a) rejection of claims 19-21 as being unpatentable over Chambers in view of Baranski and further in view of Conrad

The Examiner rejects claims 19-21 under 35 U.S.C. 103(a) as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Conrad*.

Appellant respectfully traverses this rejection for at least the reasons advanced with respect to independent claim 15 from which claims 19-21 depend. The rejection is also traversed for the following reason(s).

As to claim 19, the applied art of record fails to disclose, teach or suggest the claimed V-shaped notches extending from the top face toward, **without contacting** with, the opposing surface. *Conrad*, as applied by the Examiner, teaches many embodiments all having notches touching the belt. See e.g. Figs. 2-5 of *Conrad*.

Appellant notes the Examiner's remarks in page 6 of the Final Office Action. In particular, the Examiner states that the notch grip is commercially available and therefore obvious. Appellant respectfully disagrees because even if the notch grip is known, the claimed combination of the notch grip with an endless belt and other components as defined in claim 19 is novel and non-obvious. The Examiner fails to provide a suggestion or motivation to use the claimed notch strip in his hypothetically combined device.

The Examiner also alleges that the claimed notch grip is an obvious matter of engineering choice and it would have been obvious to modify the *Conrad* strip in the presently claimed manner to provide a slightly more stiff character to the belt. First, the Examiner is clearly relying on hindsight in this rationale. Second, *Conrad* is not modifiable in the Examiner's proposed manner simply because of the *Conrad* purpose of maximizing the flex of the belt, as noted by the Examiner in page 6, line 10 of the Office Action. See also column 1, lines 61-65 of *Conrad*, as cited by the Examiner.

Claim 19 is thus separately patentable and does not stand or fall together with other claims in the group.

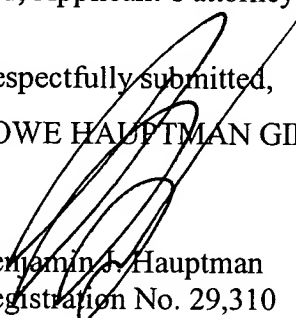
Conclusion

For the reasons shown above, Appellant respectfully requests that the 35 U.S.C. 103(a) rejection of claims 19-21 as being unpatentable over *Chambers* in view of *Baranski* and further in view of *Conrad* be reversed.

Each of the Examiner's rejections has been traversed. Accordingly, Applicant respectfully submits that all claims on appeal are considered allowable. Accordingly, reversal of the Examiner's Final Rejection is believed appropriate and courteously solicited.

If for any reason this Appeal Brief is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned, Applicant's attorney of record.

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IX. APPENDIX OF CLAIMS INVOLVED IN THE APPEAL

-- 15. A processing apparatus, comprising:

input and output conveyors installed in series and spaced apart from each other for carrying material to be processed in a working direction, each of said input and output conveyors including

an endless belt having an non-skid upper surface adapted to carry said material and a lower opposing surface provided thereon with a guiding strip extending longitudinally of said endless belt; and

a pair of input-side and output-side pulleys having horizontal axes of rotation around which said endless belt is trained with said non-skid upper surface facing outwardly and said guiding strip extending in a plane substantially parallel with the working direction, each of said pulleys having a groove extending continuously circumferentially around said pulley and in said plane for engaging said strip, thereby preventing transverse displacements of said endless belt with respect to the working direction; and

a processing unit disposed between said input and output conveyors for processing said material.

16. The apparatus of claim 15, wherein said output-side pulley of said input conveyor and said input-side pulley of said output conveyor are driven by a single power unit to rotate at substantially the same speed.

17. The apparatus of claim 16, wherein said input-side pulley of said input conveyor and said output-side pulley of said output conveyor are passively driven by said output-side pulley of said input conveyor and said input-side pulley of said output conveyor, respectively, via said endless belts of said input and output conveyors, respectively.

18. The apparatus of claim 15, wherein said strip has two side faces and a top face all extending longitudinally of said endless belt, said sides faces tapering away from said opposing surface and ending at said top face.

19. The apparatus of claim 18, wherein said strip is provided with a plurality of V-shaped notches distributed longitudinally of said endless belt and extending from said top face toward, without contacting with, said opposing surface.

20. The apparatus of claim 19, wherein said grooves of said pulleys are in constant contact with said strip.

21. The apparatus of claim 19, wherein said strip extends continuously throughout an entire length of said endless belt.

22. The apparatus of claim 15, wherein said groove has a shape conforming to a shape of said strip.

23. The apparatus of claim 15, further comprising at least one hold-down member having a non-marring surface for pressing said material against said non-skid surface.

24. The apparatus of claim 23, wherein said at least one hold-down member further has a pneumatic cylinder loaded arm for pressing said non-marring surface against said material.

25. The apparatus of claim 15, wherein said endless belt has an upper portion traveling in the working direction, and said processing unit includes at least one saw blade rotatable in a plane substantially perpendicular to said upper portion.

26. The apparatus of claim 25, wherein said at least one saw blade is rotatable about an axis co-elevational with said input and output conveyors.

27. The apparatus of claim 15, wherein said groove has a width in a direction transverse to the working direction smaller than that of said endless belt.

28. The apparatus of claim 15, further comprising a work bed disposed immediately beneath a portion of said endless belt, which travels in the working direction, for bearing at least a partial weight of said material.

29. The apparatus of claim 28, wherein said work bed is disposed horizontally.

30. The apparatus of claim 28, wherein said work bed includes another groove extending in the working direction in alignment with said groove, said another groove having a shape conforming to that of said strip for engaging said strip.

31. The apparatus of claim 15, wherein said apparatus is formed without a fence arranged to otherwise provide a lateral edge contact with the material being carried by at least one of said input and output conveyors.

32. A method of processing material, comprising the steps of:

a) providing a processing apparatus comprising input and output conveyors installed in series and spaced apart from each other for carrying the material to be processed in a working direction, each of the input and output conveyors including an endless belt having a non-skid upper surface adapted to carry the material and a lower opposing surface provided thereon with a guiding strip extending longitudinally of the endless belt, and a pair of input-side and output-side pulleys having horizontal axes of rotation around which the endless belt is trained with the non-skid upper surface facing outwardly and the guiding strip extending in a plane substantially parallel with the working direction, each of the pulleys having a groove extending continuously circumferentially around the pulley and in the plane for engaging the strip thereby preventing transverse displacements of the endless belt with respect to the working direction, said apparatus further comprising a processing unit disposed between the input and output conveyors for processing the material;

b) carrying the material on the non-skid upper surface of the input conveyor toward the processing unit;

c) processing the material with said processing unit; and

d) carrying the processed material on the non-skid upper surface of the output conveyor away from the processing unit

wherein steps b) and d) are performed without positive lateral edge contact of the material with said apparatus.